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REMARKS/ARGUMENTS

Petition is hereby made under the provisions of 37 CFR 1.136(a) for an extension of two months of the period for response to the Office Action. Authorization to charge the fee to our deposit account is enclosed.

The Examiner objected to claim 42 under 37 CFR 1.35(c), as being of improper dependent form for failing to limit the subject matter of a previous claim. This claim has been deleted.

The Examiner rejected claims 1, 26 and 38 to 40 under 35 USC 112, first paragraph, because the specification, while enabling for a concentrated protein solution having a protein content of at least 200 g/L and being enabled for a concentrated supernatant having a protein content of at least 194 g/L. does not reasonably provide enablement for concentrated protein solution having a protein content of at least 250 g/L (claim 26) or a concentrated supernatant with a protein content of at least 200, 300 or 400 g/L (claims 38 to 40).

This invention is concerned with improving the known process of the recovery of oil seed protein isolates from oil seed meals following steps (d) to (i) of claim 1. This process is described in Application No. 10/137,391 (see page 3, paras 0009 and 0010), assigned to the assignee hereof. This latter application was published under publication No. 20030125526, a copy of which is enclosed for the Examiner's convenience. The subject matter of Application No. 10/137,391 is recited as being incorporated into the application by reference thereto, as specified on paragraph 0009 on page 2 of the specification.

As can be seen from the enclosed published application, the ultrafiltration and diafiltration steps to which the Examiner refers in connection with claims 26 and 38 to 40 are specifically described; claim 26,: page 3, para [0038], last line; claims 38 to 40,: page 4, para [0051], last three lines. In any event, it is noted

that these claims are original claims, so that the disclosure could be amended, if necessary, to satisfy these ~~entries~~.

Accordingly, the specification is fully enabled for a concentrated protein solution having a protein content of at least 250 g/L, as specified in claim 26, and a concentrated supernatant with a protein content of at least 200, 300 or 400 g/L (claims 38 to 40).

Accordingly, it is submitted that the claims are fully enabled and hence the rejection of claims 1, 26 and 38 to 40 under 35 USC 112, first paragraph, should be withdrawn.

The Examiner rejected claims 1 to 50 under 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The Examiner raised a number of issues in this respect.

The Examiner referred to the terms "substantially" and "partially" with respect to claim 1. As the Examiner points out, in step (f) of claim 1, reference is made to maintaining the ionic strength substantially constant during the concentration step. As would be clear to a person skilled in the art, this recitation means that the ionic strength is meant to be kept constant during the concentration step, but minor variations in ionic strength may occur during the concentration step.

The use of the term "partially" with respect to the micellar form of the precipitating particles has been removed from claim 1 in view of the Examiner's objection.

The Examiner referred to the terms "below about", "less than about" and "at least about" used in claims 1, 5, 11, 15, 17, 24 to 27, 30, 33, 36 and 42. In accordance with the Examiner's suggestion, the term "about" has been deleted from association with the terms "below", "less than" and "at least".

The Examiner referred to claim 29 as reciting that the protein solution is diluted by about 15 fold or less to achieve the desired degree of dilution and that the dependent claims 31, 32 and 34 recite about 10 fold or less respectively. The Examiner considered claim 29 to be indefinite on the basis that the claims recites a desire to obtain a degree of dilution but that the claim encompasses zero fold dilution.

The claims cannot encompass zero fold dilution, since claim 1, on which a claim 29 ultimately is dependent, requires:

> "diluting said concentrated protein solution... to cause the formation of discrete protein particles..."

Thus, the process must effect dilution and produce discrete protein particles. Claim 29 simply specifies that this dilution step to obtain this result is effected by about 15 fold or less. The recitation, therefor cannot encompass zero fold dilution.

The Examiner referred to claims 38 to 40 as including both the broad recitation "about 100 to about 400 g/L and the narrow recitation "about 200 to about 300 g/L". The narrow recitation now has been deleted from claims 38 to 40 and the recitation made the subject of new subclaims claims 51 to 53. Authorization to charge the prescribed fee for the additional subclaims to our deposit account is enclosed.

Having regard to the revisions to the claims and the comments made above, it is submitted that the claims can no longer be considered to be indefinite and hence the rejection of claims 1 to 50 under 35 USC 112, second paragraph, should be withdrawn.

The Examiner rejected claims 1, 2, 5 to 10, 17 to 19, 29 to 31, 35 and 44 to 48 under 35 USC 103(a) as being obvious over Murray (US 6,005,076). Reconsideration is requested, having regard to the following comments and observations.

This application is directed to a process of preparing a protein isolate by a plurality of steps starting with oil seeds. The oil seeds are crushed to form oil and oil seed meal therefrom. The oil seed meal is solvent extracted to recover residual oil therefrom and then the solvent is removed from the extracted oil seed meal at a temperature below 50°C to provide a desolventized oil seed meal. It is this desolventized oil seed meal which is processed to recover the protein isolate.

The recovery of the protein isolate is effected by extracting the desolventized oil seed meal to cause solubilization of protein in the desolventized oil seed meal and to form an aqueous protein solution having a pH of about 5 to about 6.8. The aqueous protein solution is separated from residual oil seed meal, following which the aqueous protein solution is concentrated while maintaining the ionic strength substantially constant by using a selective membrane technique to provide a concentrated protein solution. The concentrated protein solution then is diluted into chilled water having a temperature of below 15°C to cause the formation of discrete protein particles in the aqueous phase in the form of micelles. The protein micelles are settled to form an amorphous, sticky, gelatinous, gluten-like protein micellar mass, which is recovered from supernatant, the protein micellar mass having a protein content of at least 90 wt% (N x 6.25) on a dry weight basis.

As set forth in the disclosure (para 0003), it is common practice in the recovery of oil from oil seeds, such as canola, to crush the oil seeds to remove most of the oil and to hot solvent extract the residual meal to recover the remainder of the oil. The residual meal from the solvent extraction contains residual solvent, which is recovered from the meal for reuse before the oil seed meal is disposed by the crusher. In the solvent recovery operation, the oil seed meal is heated to temperatures of about 120° to 140°C in a procedure called "toasting"

The present invention is based on the surprising discovery that the amount of protein which can be extracted from canola oil seed protein meal can be significantly increased if the extraction is effected on ambient temperature desolventized meal. The ability to extract more protein from the meal improves the

overall economics of the process. In addition, a product of improved quality is obtained. It is submitted that the Murray et al does not describe or suggest the process defined in rejected claims.

It is conceded that the Murray et al reference describes steps (d) to (i) of claim 1. It is submitted that the Murray et al reference does not disclose or suggest the combination of steps with steps (a) to (c) of claim 1 with steps (d) to (i).

The Examiner refers to Example 3 of Murray et al. The Example illustrates the use of cold pressed extraction of canola seeds. The Example indicates that intact canola seeds were fed into a cold extrusion press and crushed. The compacted seed debris, less extruded oil, were ground in a standard mill to a consistency similar to that of commercial canola meal and then processed by the protein extraction and recovery process described in Example 2. In that process, a commercial Polish rapeseed meal was processed, first by extracting the meal using an aqueous salt solution, which is the equivalent of step (d) of claim 1. As the Examiner states:

"Murray does not explicitly teach a desolventized oil seed meal."

In particular, Murray et al does not disclose or suggest the combination of step (a) to (c) of claim 1 with steps (d) to (i) of claim 1, the latter steps being disclosed in Murray et al and exemplified by the procedure of Example 2.

The Examiner states in the Office Action that:

> "It would have obvious to a person having ordinary skill in the art to crush canola seeds (claim 1)..."

It is conceded in the background to the invention that oil seeds are crushed to separate the oil from the oil seeds. The Examiner goes on to state:

"... extract the oil seed meal by a suitable solvent (claim 1, 2)."

The Examiner does not differentiate between the extraction step recited in step (b) of claim 1 and that recited in step (d) of claim 1. The former step involves the solvent extraction of the oil seed meal to recover residual oil therefrom while the latter extracts the desolventized oil seed meal to cause solubilization of protein in the desolventized oil seed meal to form an aqueous protein solution.

The Examiner then goes on to say:

"... such as hexane or an aqueous salt solution (claims 1, 2, 5)"

Hexane and an aqueous salt solution are not equivalent solvents. The hexane and aqueous salt solution are used in applicants process to effect the two different extractions of oil seed meal for two entirely different purposes.

After discussing others of steps (d) to (i) of claim 1, the Examiner gives as the basis for the obviousness argument:

> "... because Murray provides and suggests motivation for preparing a protein isolate from canola oil seed meal that involves a step of lowering the extraction system to a temperature below 50°C, i.e. 25°C."

presumably referring to the temperature of salt extraction of the meal in Example 2 of Murray et al.

The Examiner's argument appears to confuse the two extraction processes set forth in steps (b) and (d) of claim 1. It is not known what the Examiner means by the term "extraction system". It is conceded that Murray et al disclose extracting canola oil seed meal with aqueous salt solution at 25°C and that 25°C is less than 50°C. In fact, in col. 3, line 30, it is indicated that the salt solubilization of the protein from the oil seed meal is effected at a temperature of 5° to 35°C.

However, since the temperature disclosure is directed to the salt solubilization of protein from the oil seed meal, this disclosure cannot render obvious extracting the oil seed meal to extract residual oil from crushed oil seeds at a

temperature below 50°C to provide a desolventized oil seed meal, which then is extracted with aqueous salt solution to solubilize protein and form an aqueous protein solution, as defined in claim 1.

In addition, as discussed above, effecting desolventizing of the oil seed meal at a temperature below 50°C has the beneficial result that the amount of protein which can be extracted from the desolventized meal can be significantly increased in comparison to the prior art toasted meal, as illustrated by applicants Examples.

Accordingly, it is submitted that claims 1, 2, 5 to 10, 17 to 19, 29 to 31, 35 and 44 to 48 are patentable over the applied prior art and hence the rejection of these claims under 35 USC 103(a) as being unpatentable over Murray US 6,005,076, should be withdrawn.

The Examiner advised that, should claim 44 be found allowable, claim 47 will be objected to under 37 CFR 1.75 as being a substantial duplication thereof. Claim 47 has been deleted.

The Examiner rejected claims 1 to 50 on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1 to 51 of US Patent No. 6,992,173. A rejection of obviousness-type double patenting can be overcome by the submission of a Terminal Disclaimer signed by an attorney or agent of record.

Submitted herewith is a Terminal Disclaimer disclaiming the term of the patent to be granted on this application which may extend beyond the term of US Patent No. 6,992,173, signed by an agent-of-record. Authorization to charge the prescribed fee for recordal of the Terminal Disclaimer to our deposit account is enclosed.

It is submitted that claims 1 to 50 are no longer open to rejection to the ground of obviousness-type double patenting as being unpatentable over claims 1 to 51 of US Patent No. 6,992,173.

The Examiner rejected claims 1 to 50 on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1 to 58 of US Patent No. 7,087,720. As noted above, a rejection of obviousness-type double patenting can be overcome by the submission of a Terminal Disclaimer.

Submitted herewith is a Terminal Disclaimer signed by an agent-of-record disclaiming the term of the patent to be granted on this application which may extend beyond the term of US Patent No. 7,087,720. Authorization to charge the prescribed fee for recordal to our deposit account is enclosed.

It is submitted that claims 1 to 50 are no longer open to provisional rejection on the ground of obviousness-type double patenting as being unpatentable over claims 1 to 58 of US Patent No. 7,087,720.

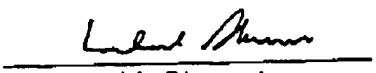
The Examiner provisionally rejected claims 1 to 50 on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1 to 2, 5 to 46 and 48 to 52 of copending Application No. 10/498,130. The rejection is a provisional one because the conflicting claims have not in fact been patented.

Nevertheless, submitted herewith is a Terminal Disclaimer, signed by an agent-of-record, disclaiming the term of the patent to be granted on this application which may extend beyond the term of the patent to be granted on copending Application No. 10/498,130.

It is submitted that claims 1 to 50 are no longer open to provisional rejection on the ground of obviousness-type double patenting as being unpatentable over 1 to 2, 5 to 46 and 48 to 50 of copending Application No. 10/498,130.

It is believed that this application is now in condition for allowance and early and favourable consideration and allowance are respectfully solicited.

Respectfully submitted,



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